

CH 4, Data Analytics, Presenting the findings.

Multimodal online solutions

A multimodal online solution (MMOS):

- is web capable (eg: a website).
- presents multiple types of data (eg: text, sound and still & moving images).
- communicates data & ideas

Multimodal online solutions

How will the multimodal online solution (MMOS) be used to complete the SAT?

- Present the findings from the hypothesis.
- Communicate & substantiate the conclusion you have reached.

Multimodal online solutions

The features of the web authoring software you must show in the SAT are the ability to:

- Import, enter, edit & format content
- Structure screen layout
- Create links
- Provide navigation
- Create buttons & tags
- Incorporate images (still & moving), text & sound.

What makes an effective MMOS?

CARAT ACCRU

1. Communication of message
 - ▶ Suitable for a worldwide audience in terms of inclusiveness (eg: gender, culture, language, age).
2. Accessibility
 - ▶ Allow for people with special needs.
3. Clarity
 - ▶ Message must be clear for most audience members. Minimise jargon.

What makes an effective MMOS?

4. Readability
 - ▶ Consider size, colour and spacing of text, images and audio.
5. Relevance
 - ▶ Stay on topic. Only include relevant material.
6. Accuracy
 - ▶ Information provided needs to be accurate and from reputable sources.

What makes an effective MMOS?

7. Useability
 - ▶ Awareness of different browsers and plug-ins that will be required. Size of monitors (screens) is an issue.
8. Timeliness
 - ▶ Reduce or limit delays due to file sizes and download speeds.

What makes an effective MMOS?

9. Completeness

- ▶ Present all findings and do not omit important information.

10. Attractiveness

- ▶ User interface should be attractive, appealing and easy to use. Allow users chooses in appearance and use.

Designing a solution

The objective of spending time to design a solution is so the MMOS is effective by successfully communicating the message to the audience.

The design should attempt to take into account all of the attributes listed on page 186.

Formats & conventions

A format is a form in which information is presented, for example a webpage, a chart, a table etc.

A convention is an accepted technique or guideline that relates to a particular format.

By following the appropriate conventions the effectiveness of the solution should be enhanced.

Formats & conventions

Some examples include:

Format	Convention
Webpage	Minimise scrolling & download times
Chart	Include appropriate titles & labels
Table	Include units of measurement in the heading
Text	Align to the left (numbers to the right).

Formats & conventions

You should obey conventions because information is quicker and easier to understand if presented in a predictable way. It is more **effective**.

However conventions come in different strengths:

- ▶ **Mandatory** – should always be followed.
- ▶ **Preferred** – would be followed in most cases.
- ▶ **Optional** – individuals have a real choice.

Design principles

Factors to enhance the appearance and functionality of a solution.

Careful design will ensure the solution meets the following principles:

Functionality	Appearance
Useability- Robustness Flexibility, ease of use	Alignment
Accessibility –	Repetition
Navigation, Error Tolerance	Contrast
	Space
	Balance

Generating design ideas

For the SAT you are required to come up with at least three design ideas.

Some methods of generating design ideas include:

- ▶ Brainstorming
- ▶ Mind mapping
- ▶ Graphic organisers
- ▶ Consult with end users

Evaluating design ideas

Once you have your three ideas then you must select the most appropriate.

You should consider functional & non-functional requirements as well as constraints such as:

- ▶ Ease of use & implementation
- ▶ Cost & time requirements
- ▶ scalability

Design tools

Design tools can be used to assist in the design process. Some tools that can be used with a MMOS include:

- ▶ IPO charts
- ▶ Page mock-ups
- ▶ Site maps
- ▶ Storyboard
- ▶ Layout diagrams

Assessing the project plan

The importance of project management techniques when creating an information solution.

They enable the project to be planned and deadlines to be set.

This allows the managers to monitor the project and make alterations & adjustments when required.

Assessing the project plan

As it is very rare for a project to run completely to plan modifications are needed to be made on an ongoing basis to reflect reality.

In the case of the SAT this will mean adjusting the Gantt chart as we go.

This may mean changing the schedule or reallocating resources as the situation requires.

Assessing the project plan

A project plan may need to be annotated to explain reasons for changes to task schedules or resourcing priorities.

This will help inform all team members of any changes as well as assist in planning future projects.

Assessing the project plan

A **project log** can be maintained as a record of progress and to keep track of project tasks. This will assist in managing the project efficiently (see p. 226).

You will be required to keep a project log throughout the SAT.

Assessing the project plan

Due to the time and effort put into completing a project it is important that the project plans are evaluated afterwards to assess how effective the planning was.

Lessons learnt can be used in future planning situations. For example did the adjustments made along the way assist in the effective management of the project?

Assessing the project plan

Areas that could be assessed include:

- ▶ Was the original plan complete (were all tasks and required resources included)?
- ▶ Was the Gantt chart easy to maintain and easy to read?
- ▶ Was the original sequencing, time allocations and dependencies correct?

Developing the MMOS

Revision question:

What is the problem-solving methodology?

A method of solving problems that aims to achieve the most effective solution in the most efficient manner.

The steps are **analysis, design, develop & evaluate**.

Developing the MMOS

Analysis: you should have completed this task when you outlined the requirements, constraints & scope of the solution.

Design: you completed this task when you used design tools to document your design and decided upon the evaluation criteria.

The steps yet to be completed are **develop & evaluate**.

Develop – managing files

When developing a solution to a project, managing files efficiently is a major objective of any team.

Poor file management can lead to time wasted through searching for files or having to redo work that has been lost/misplaced.

Develop – managing files

Some methods that can be utilised include:

- ▶ Planning an appropriate disk structure, including naming of files/directories.
- ▶ Taking note of the file path, including absolute & relative paths.
- ▶ Using version control.
- ▶ Using file management utilities/software.

Develop – validating data

Validation is an important step in the process of producing an effective solution.

It involves checking that the input data is reasonable (not necessarily accurate).

Methods of validation include:

- ▶ Proof reading
- ▶ Range checks
- ▶ Type checks
- ▶ Existence checks

Develop – manipulating data

Manipulating the data involves changing/altering it to produce the required information.

Methods may include:

- ▶ Taking the raw data from a questionnaire and producing a chart.
- ▶ Manipulating an image so its size is appropriate for a website.
- ▶ Formatting a website so it is communicates the message and easy to use (eg: navigate).

Develop – manipulating data

Various software will be available to assist in manipulating the data:

- ▶ Image/graphic editors
- ▶ Video editors
- ▶ Web authoring

Develop MMOS – testing output

- ▶ Testing is different to validation as it checks the accuracy, functionality and usability of the output.
- ▶ Test data needs to be created that will appropriately test all of the requirements of the solution.

Develop MMOS – testing output

- ▶ Testing types:
 - Informal
 - User acceptance testing
 - Component
 - Integration
 - System
 - Installation
 - Compatibility
 - Useability
 - accessibility

Develop – testing output

- ▶ Good test data
 - Valid data
 - Valid but unusual data
 - Invalid data
 - Boundary condition data

Develop – testing output

- ▶ Areas of a MMOS that could be tested include: hyperlinks, calculations, images (moving & still), download speeds, readability, calculations, loading times, browser compatibility, CSS, dynamic features & accessibility.
- ▶ A testing table is commonly used to document the testing (see p 235). This provides evidence of the testing undertaken and can be referred to for future projects. Records evidence of functionality testing

Evaluation

- ▶ This is the final stage of the problem-solving process.
- ▶ It checks whether the solution has achieved its objectives, such as efficiency & effectiveness.
- ▶ The evaluation should be based on the criteria decided upon at the design stage.

Evaluation

Some common areas to evaluate, categorized by the two main criteria, include:

Efficiency	Effectiveness
Productivity	Accuracy
Profitability	Reliability
Time required	Security
	Ease of use

See if you can think of a measure to evaluate each of these areas (see p 238).

Evaluation Methods

- ▶ For each evaluation criterion there must be a corresponding evaluation method
 - Objective, fact-based, measurable
 - Subjective results
- ▶ Evaluation occurs after the solution has been in regular use